REMARKS/ARGUMENTS

Status of Claims

Claims 1-12, 20-29, 31-38, 46-54, and 56-67 stand rejected in this application.

Claims 1 and 36 have been amended.

Claims 13-19, and 39-45 have been withdrawn.

Thus, claims 1-12, 20-29, 31-38, 46-54, and 56-67 are pending in the present application.

Applicants hereby request further examination and reconsideration of the presently claimed application.

Claim Rejections – 35 U.S.C. § 102

Claims 1-12, 20-22, 25-29, 31, 32, 35-38, 46-54, 56, 57, 60-64 and 67 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 7,049,442 to DeBoer *et al.* (*DeBoer*). Claims 2-12, 20-29, 31, 32, and 35 depend from independent claim 1 and claims 37-38, 46-54, 56, 57, 60-64 and 67 depend from independent claim 36. According to MPEP § 2131, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." The Applicants respectfully submit that *Deboer* fails to teach each and every element of independent claims 1 and 36, and thus fails to anticipate claims 1-12, 20-22, 25-29, 31, 32, 35-38, 46-54, 56, 57, 60-64 and 67.

Specifically, *DeBoer* does not teach a diluent comprising 1-butene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadecene, or combinations thereof. Independent claims 1 and 36 read:

> 1. A method comprising:
> contacting an oligomerization catalyst system and a feed comprising olefins and a diluent;
> oligomerizing said feed in at least one continuous reactor; and
> withdrawing from said at least one continuous reactor an effluent comprising product olefins having at least four carbon atoms, wherein **the effluent comprises**

> **the diluent and wherein the diluent comprises 1-butene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadecene, or combinations thereof**;
> wherein the oligomerization catalyst system comprises iron or cobalt, or combinations thereof; and
> wherein oligomerization to product olefins having at least four carbon atoms comprises a single pass conversion of ethylene of at least about 40 weight percent.
>
> 36. A method comprising:
> contacting an oligomerization catalyst system and a feed comprising olefins and a diluent;
> oligomerizing said feed in at least one continuous reactor; and
> withdrawing from said at least one continuous reactor an effluent comprising product olefins having at least four carbon atoms, wherein **the effluent comprises the diluent and wherein the diluent comprises 1-butene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadecene, or combinations thereof**;
> wherein oligomerization to product olefins having at least four carbon atoms comprises a single pass conversion of ethylene of at least about 65 weight percent; and
> wherein product olefins having twelve carbon atoms comprise at least about 95 weight percent 1-dodecene.

(Emphasis added). As shown above, each of independent claims 1 and 36 recite the limitation that the effluent comprises the diluent, wherein the diluent comprises 1-butene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadecene, or combinations thereof. As was explained in detail in the previous Response to Office Action dated May 6, 2008, the diluents recited in claims 1 and 36 are reactive in the oligomerization reaction as evidenced by Example 2 of the present application. In contrast, *DeBoer* teaches an inert solvent:

> "The oligomerisation reaction is carried out in the presence of an **inert solvent** which may also be the carrier for the catalyst and/or feed olefin. Suitable solvents include alkanes, alkenes, cycloalkanes, and aromatic hydrocarbons. For example, solvents that may be suitably used according to the present invention include hexane, isooctane, benzene, toluene, and xylene."

Col. 10, lines 20-26 (emphasis added). Thus, a significant distinction is that the presently pending claims recite reactive diluents in contrast to inert solvents used by *DeBoer*.

Furthermore, independent claims 1 and 36 have been amended to recite that the diluent is part of a feed to a reactor. Support for such amendment is provided *inter alia* by Example 3:

> "Thus, 120g of 1-butene was introduced into the reactor, followed by catalyst and cocatalyst. Ethylene was fed to the reactor by demand and the semi-continuous oligomerization experiment was performed at 500 psig of ethylene. In Figs. 9 and 10, conversion, measured as the amount of product olefins formed, increases as the percentage of butene present decreases. In the single run oligomerization, the mass of the diluent, 1-butene, decreases from 100 percent due to ethylene oligomerization to product olefins."

Specification at [0064] (emphasis added). In contrast, *DeBoer* clearly defines 1-dodecene as a reaction product rather than an inert solvent that is added to the reactor. *See* col. 11, lines 30-39. As such, *DeBoer* unequivocally differentiates between inert solvents that are added to the reaction (as recited in amended claims 1 and 36) and reaction products, with 1-dodecene being defined as the later rather than the former. Accordingly, when *DeBoer* is read as a whole, 1-dodecene as a reaction product of *DeBoer* cannot be properly interpreted as the same as 1-dodecene as a diluent that is added to the reactor as recited in the pending claims. Likewise, one skilled in the art would understand the difference between a diluent or solvent (i.e., something that is added to the reaction as expressly recited in claims 1 and 36) in contrast to a reaction product (i.e., something that is produced by the reaction). Additionally, *DeBoer's* examples do not list 1-dodecene as a feed to the oligomerization reactor. See column 20, lines 22-52. One of ordinary skill in the art would readily appreciate the difference between a 1-dodecene diluent as recited in the pending claims and *DeBoer's* 1-dodecene reaction product that is produced in an inert solvent. Accordingly, Applicants respectfully submit that independent claims 1 and 36, as well as all claims depending there from, are not anticipated by *DeBoer*.

Claim Rejections – 35 U.S.C. § 103

Claims 23, 24, 65, and 66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *DeBoer*. Claims 33, 34, 58, and 59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *DeBoer* in view of U.S. Patent 5,830,955 to Tekeda *et al.* (*Tekeda*). Claims 23, 24, 33, and 34 depend from claim 1 and claims 58, 59, 65, and 66 depend from claim 36. Thus, claims 23, 24, 33, 34, 58, 59, 65, and 66 stand or fall on the application of *DeBoer* and *Tekeda* to independent claims 1 and 36. As noted by the United States Supreme Court in *Graham v. John Deere Co. of Kansas City*, an obviousness determination begins with a finding that **"the prior art as a whole in one form or another contains all" of the elements of the claimed invention**. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 22 (U.S. 1966). The Applicants respectfully submit that the combination of *DeBoer* and *Tekeda* fails to contain all of the elements of the claimed invention, and therefore does not make obvious the pending claims.

For the reasons stated above, *DeBoer* fails to contain the element of the addition to the reaction of a diluent comprising 1-butene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadecene, or combinations thereof. *Tekeda* is not cited to cure this inadequacy of *DeBoer*. As such, the combination of *DeBoer* and *Tekeda* fails to contain all of the elements of the claimed invention, and therefore cannot make obvious the pending claims.

CONCLUSION

Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections is respectfully requested by Applicants. No new matter is introduced by way of the amendment. It is believed that each ground of rejection raised in the Final Office Action dated August 7, 2008 and the Advisory Action dated October 23, 2008 has been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to telephone the undersigned at the telephone number given below.

Respectfully submitted,
CONLEY ROSE, P.C.

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